

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An apparatus for searching corresponding points between an input image and a reference image which is an object of comparison with the input image, said apparatus comprising:

a similarity degree image production unit which produces a plurality of similarity degree images each having a ~~similarity degree~~ plurality of similarity degrees between the input image and the reference image as a ~~pixel value~~ plurality of pixel values; and

a corresponding point detection unit which detects corresponding points between the input image and the reference image based on the similarity degree images produced by said similarity degree image production unit,

wherein said similarity degree image production unit includes:

a reference partial image production unit which divides the reference image into a plurality of blocks as a plurality of reference partial images;

an input partial image production unit which divides the input image into a plurality of blocks as a plurality of input partial images; and

a similarity degree calculation unit which calculates the similarity degrees between the input partial images and the reference partial images, wherein the similarity degree images include a first similarity degree image and a second similarity degree image, and

wherein said corresponding point detection unit includes:

an accumulation-addition unit which sequentially accumulation-adds a first pixel value of a first pixel selected from a group of pixels including one pixel and a plurality of pixels around the one pixel in the first similarity degree image, to a second pixel value of a second pixel in the second similarity degree image, the one pixel having a coordinate in a block defined by each of the

similarity degree images, the coordinate corresponding to that of the second pixel; and

a corresponding point specific unit which specifies the corresponding points based on the similarity degree images which have been accumulatively added by said accumulation addition unit.

Claim 2 (Canceled).

3. (Currently Amended) The apparatus according to claim [[2]] 1, wherein said ~~reference partial image production unit divides the reference image into a plurality of blocks and generates a plurality of reference partial images; and~~ input partial image production unit produces [[a]] the plurality of input partial images each of whose size is greater than a size of each of the reference partial images and [[the]] each of which is obtained by dividing said input image into [[a]] the plurality of blocks whose parts are mutually overlapped.

4. (Currently Amended) The apparatus according to claim [[2]] 1, wherein said similarity degree calculation unit ~~defines an~~ calculates a Euclid distance or a normalized correlation coefficient between the input partial ~~image~~ images and the reference partial ~~image~~ images as [[a]] the similarity ~~degree~~ degrees.

5. (Canceled).

6. (Currently Amended) The apparatus according to claim [[5]] 1, wherein said accumulation-addition unit recursively repeats accumulation-addition ~~calculation~~ for the plurality of similarity degree images in a horizontal direction, a direction opposite to the horizontal direction, a vertical direction, and a direction opposite to the vertical direction.

7. (Currently Amended) The apparatus according to claim [[5]] 1, wherein said accumulation-addition unit recursively repeats accumulation-addition for the plurality of similarity degree images in a horizontal direction, a direction opposite to the horizontal direction, a vertical direction, and a direction opposite to the vertical direction until a width of variance of position of a maximum value in each of the similarity degree images becomes smaller than a predetermined value.

8. (Currently Amended) The apparatus according to claim [[5]] 1, wherein said corresponding point specific unit ~~defines~~ specifies a pixel position of a pixel whose pixel value of having a maximum pixel value in each of the similarity degree images ~~additionally~~ which have been accumulatively added by said accumulation-addition unit ~~which becomes maximum~~, as ~~the~~ each corresponding ~~points~~ point.

9. (Currently Amended) The apparatus according to claim [[5]] 1, wherein said accumulation-addition unit ~~sequentially accumulation-adds each of~~ adds a pixel value of a pixel having a maximum pixel value ~~values~~ value from among ~~each of pixel values of peripheral pixels~~ the group of pixels, as the first pixel value.

10. (Currently Amended) A method of searching corresponding points between an input image and a reference image which is an object of comparison with the input image, the method comprising:

~~a similarity degree image production step of~~ producing a plurality of similarity degree images each having a plurality of similarity degree degrees between the input image and the reference image as a plurality of pixel value values; and

~~a corresponding point detection step of~~ detecting corresponding points between the input image and the reference image based on the plurality of

similarity degree ~~image~~ images produced ~~in the similarity degree image production step,~~

wherein the producing includes,

dividing the reference image into a plurality of blocks as a plurality of reference partial images;

dividing the input image into a plurality of blocks as a plurality of input partial images; and

calculating the similarity degree between the input partial images and the reference partial images, wherein the plurality of similarity degree images include a first similarity degree image and a second similarity degree image, and

wherein the detecting includes:

sequentially accumulation-adding a first pixel value of a first pixel selected from a group of pixels including one pixel and a plurality of pixels around the one pixel in the first similarity degree image, to a second pixel value of a second pixel in the second similarity degree image, the one pixel having a coordinate in a block defined by each of the similarity degree images, the coordinate corresponding to that of the second pixel; and

specifying the corresponding points based on the similarity degree images which have been accumulatively added.

Claim 11 (Canceled).

12. (Currently Amended) The method according to claim ~~[[11]]~~ 10, wherein the ~~reference partial image production unit divides the reference image into a plurality of blocks and generates a plurality of reference partial images; and said input partial image production step produces a~~ producing includes generating the plurality of input partial images each of whose size is greater than a size of each of the reference partial images and ~~[[the]]~~ each of which is

obtained by dividing said input image into [[a]] the plurality of blocks whose parts are mutually overlapped.

13. (Currently Amended) The method according to claim [[11]] 10, wherein the ~~similarity calculation step defines an~~ calculating includes calculating ~~a~~ Euclid distance or a normalized correlation coefficient between the input partial ~~image~~ images and the reference partial ~~image~~ images as [[a]] the similarity ~~degree~~ degrees.

14. (Canceled).

15. (Currently Amended) The method according to claim [[14]] 10, wherein the accumulation addition ~~step is~~ recursively repeats accumulation- ~~addition calculation~~ repeated for the plurality of similarity degree images in a horizontal direction, a direction opposite to the horizontal direction, a vertical direction, and a direction opposite to the vertical direction.

16. (Currently Amended) The method according to claim [[14]] 10, wherein the accumulation addition ~~step is~~ recursively repeats accumulation- ~~addition calculation~~ repeated for the plurality of similarity degree images in a horizontal direction, a direction opposite to the horizontal direction, a vertical direction, and a direction opposite to the vertical direction until a width of variance of position of a maximum value in each of similarity degree images becomes smaller than a predetermined value.

17. (Currently Amended) The method according to claim [[14]] 10, wherein the ~~corresponding point specific step defines~~ specifying includes specifying a pixel position of a pixel whose having a maximum pixel value [[of]] in each of the similarity degree images ~~additionally~~ which have been

~~accumulatively~~ added ~~by the accumulation addition step which becomes~~
~~maximum~~, as the each corresponding ~~points~~ point.

18. (Currently Amended) The method according to claim [[14]] 10,
wherein the accumulation-addition ~~step sequentially and accumulatively adds~~
~~each of maximum pixel values from among each of pixel values of peripheral~~
~~pixels~~ includes adding a pixel value of a pixel having a maximum pixel value from
the group of pixels, as the first pixel value.

19. (Currently Amended) A computer program containing
instructions which when executed on a computer realizes a method of searching
corresponding points between an input image and a reference image which is an
object of comparison with the input image, the method comprising:

~~a similarity degree image production step of producing a plurality of~~
similarity degree images each having a plurality of similarity degree degrees
between the input image and the reference image as a plurality of pixel value
values; and

~~a corresponding point detection step of detecting corresponding points~~
between the input image and the reference image based on the plurality of
similarity degree ~~image~~ images ~~produced in the similarity degree image~~
~~production step,~~

wherein the producing includes,

dividing the reference image into a plurality of blocks as a plurality
of reference partial images;

dividing the input image into a plurality of blocks as a plurality of
input partial images; and

calculating the similarity degree between the input partial images
and the reference partial images, wherein the plurality of similarity degree
images include a first similarity degree image and a second similarity degree
image, and

wherein the detecting includes:

sequentially accumulation-adding a first pixel value of a first pixel selected from a group of pixels including one pixel and a plurality of pixels around the one pixel in the first similarity degree image, to a second pixel value of a second pixel in the second similarity degree image, the one pixel having a coordinate in a block defined by each of the similarity degree images, the coordinate corresponding to that of the second pixel; and specifying the corresponding points based on the similarity degree images which have been accumulatively added.

Claim 20 (Canceled).

21. (Currently Amended) The computer program according to claim [[20]] 19, wherein the ~~reference partial image production unit divides the reference image into a plurality of blocks and generates a plurality of reference partial images; and said input partial image production step produces a~~ producing includes generating the plurality of input partial images each of whose size is greater than a size of each of the reference partial images and [[the]] each of which is obtained by dividing said input image into [[a]] the plurality of blocks whose parts are mutually overlapped.

22. (Currently Amended) The computer program according to claim [[20]] 19, wherein the ~~similarity calculation step defines an~~ calculating includes calculating a Euclid distance or a normalized correlation coefficient between the input partial ~~image~~ images and the reference partial ~~image~~ images as [[a]] the similarity ~~degree~~ degrees.

23. (Canceled).

24. (Original) The computer program according to claim ~~[[23]]~~ 19, wherein the accumulation addition ~~step is~~ recursively ~~repeats accumulation-addition-calculation~~ repeated for the plurality of similarity degree images in a horizontal direction, a direction opposite to the horizontal direction, a vertical direction, and a direction opposite to the vertical direction.

25. (Currently Amended) The computer program according to claim ~~[[23]]~~ 19, wherein the accumulation addition ~~step is~~ recursively ~~repeats accumulation-addition-calculation~~ repeated for the plurality of similarity degree images in a horizontal direction, a direction opposite to the horizontal direction, a vertical direction, and a direction opposite to the vertical direction until a width of variance of position of a maximum value in each of similarity degree images becomes smaller than a predetermined value.

26. (Currently Amended) The computer program according to claim ~~[[23]]~~ 19, wherein the ~~corresponding point specific step defines~~ specifying includes specifying a pixel position of a pixel whose having a maximum pixel value ~~[[of]]~~ in each of the similarity degree images ~~additionally which have been accumulatively added by the accumulation addition step which becomes maximum, as the~~ each corresponding points point.

27. (Currently Amended) The computer program according to claim ~~[[23]]~~ 19, wherein the accumulation-addition ~~step sequentially and accumulatively adds each of maximum pixel values from among each of pixel values of peripheral pixels~~ includes adding a pixel value of a pixel having a maximum pixel value from the group of pixels, as the first pixel value.

28. (New) The apparatus according to claim 1, wherein the accumulation-addition unit sequentially executes the accumulation addition for all the similarity degree images in at least one direction.

29. (New) The method according to claim 10, wherein the accumulation addition includes sequentially executing the accumulation addition for all the similarity degree images in at least one direction.

30. (New) The computer program according to claim 19, wherein the accumulation addition includes sequentially executing the accumulation addition for all the similarity degree images in at least one direction.

31. (New) The apparatus according to claim 1, wherein the accumulation-addition unit is configured to calculate a maximum value filter including a plurality of maximum pixel values each being a maximum of pixel values of a group of pixels in the similarity degree images, and to add one of the maximum pixel values from the maximum value filter as the first pixel value to the second pixel value.

32. (New) The method according to claim 10, wherein the accumulation addition includes:

calculating a maximum value filter including a plurality of maximum pixel values each being a maximum of pixel values of a group of pixels in the similarity degree images; and

adding one of the maximum pixel values from the maximum value filter as the first pixel value to the second pixel value.

33. (New) The computer program according to claim 19, wherein the accumulation addition includes:

calculating a maximum value filter including a plurality of maximum pixel values each being a maximum of pixel values of a group of pixels in the similarity degree images; and

adding one of the maximum pixel values from the maximum value filter as the first pixel value to the second pixel value.